

## FAULT DETECTION SYSTEM AND METHOD USING AUGMENTED DATA AND FUZZY LOGIC

### ABSTRACT OF THE DISCLOSURE

A system and method that provides improved fault detection in turbine engines is disclosed. The fault detection system provides the ability to detect symptoms of engine faults based on a relatively limited number of engine parameters that are sampled relatively infrequently. The fault detection system includes a sensor data processor that receives engine sensor data during operation and augments the sensor data. The augmented data set is passed to a fuzzy logic inference system that determines the likelihood that a fault has occurred. The inference system output can then be passed to a diagnostic system where evaluation of the output may yield a detailed diagnostic result and a prediction horizon.